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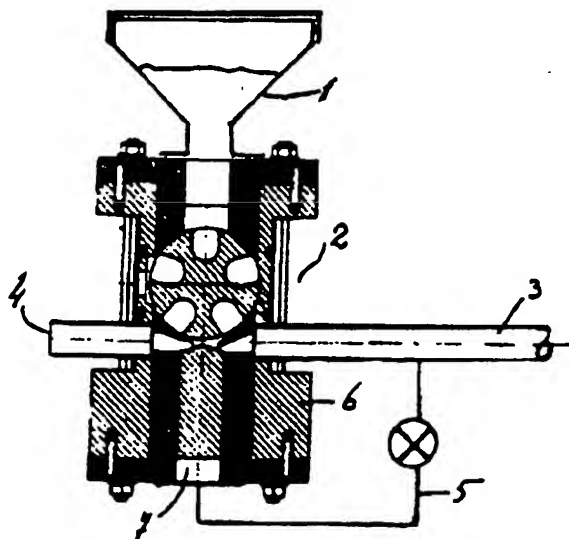
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(54) Title: FEEDER FOR CRYOGENIC PARTICLES



(57) Abstract: The invention concerns a feeder for metering of cryogenic particles. The feeder is foreseen with a feeding cylinder (8) with cavities (9) which transport the cryogenic particles from the bunker (1) to a venturi which takes form by a conical supply (15) and a conical discharge (16) where in the intervening space an element in the form of a roof the cleft between supply and discharge cone enlarges or reduces. The element with the form of a roof is moved with the help of gas-pressure to the feeding cylinder.

WO 02/060647 A1

-1-

Feeder for cryogenic particles.

The invention concerns a feeder for metering of cryogenic particles which are used for treating surfaces. Feeders of this type are known from the patent publication NL-A-1007421. This
05 appliance has the disadvantage that metal parts are freezing and the feeding is not continue. Also is found that the friction of the feeding cylinder asks for a high torque from the drive.

By using synthetic material with a low coefficient of friction and a drastic reduction of the diameter of the feeding cylinder a good working appliance is acquired. Preferably modified
10 polytetrafluoraethylene is used. The feeder is foreseen with a feeding cylinder with cavities which transport the cryogenic particles from the bunker to a venturi which is formed by a conical supply and a conical discharge where within the spacing an element in the shape of a roof the cleft between supply and discharge cone enlarge or reduces. The element in the shape of a roof is moved by gas pressure in the direction of the feeding cylinder.

15 The invention will be discussed with the help of the drawing.

Fig. 1 shows the scheme of the appliance.

Fig. 2 shows crossection I - I through the feeder partition.

20 Fig. 3 shows crossection II - II through the feeder partition.

Fig. 4 shows the top view without the bunker.

The cryogenic particles are stored in bunker (1) which is adequately isolated. The cryogenic particles are feeded in feeder (2) and transported with gas which is supplied through inlet
25 compressed gas (3) via discharge (4) to the nozzle. On the inlet compressed gas (3) is a branch (5) which is connected to housing (6) and is connected with space (7).

In feeder (2) is feeding cylinder (8) with preferable 5 cavities (9) and driven by shaft (10) by a drive with variable number of revolutions per minute. Cavities (9) are in preference oblong and have the shape of a half hollow cylinder with rounded ends.

30 Feeding cylinder (8) fits in housing (3) and is boxed up between blocks (11) and (12) which are boxed up between parts (13) and (14).

In block (12) are conical openings (15) and (16) near the inlet compressed gas (3) and discharge (4) which end with the smallest opening into space (17). In space (7) is a plunger (18) which has a right-angled crossection and at (19) the shape of a roof. The space (17) is bordered on one
35 side by feeding cylinder (8) and roofform (19) and on the other side by conical openings (15) and (16). This structure takes the form of a venturi. Plunger (18) can slide axial in part (14) and block (12) and is connected via space (7) with branch (5). Plunger (18) will be pressed by gas pressure of the inlet compressed gas (3) elastic against feeding cylinder (8).

-2-

In housing (3) is at (20) a chamber which is connected to open air to equalise the gas pressure in cavity (9). Feeding cylinder rotates in the direction of arrow (21).

Filling opening (22) is about two times wider than cavity (9) and is placed under an angle between 13 and 17 degrees in relationship with the axis of feeding cylinder (8).

- 05 When a cavity (9) which is filled with cryogenic particles is connected with space (17) the yet of gas from inlet pressurised gas (3) will bring cryogenic particles in whirling and drive them via roofform (19) to discharge (4).

-3-

Claims.

1. Feeder for cryogenic particles destined for treating surfaces where the particles are transported with a feeding cylinder (8) to a venturi characterised by that the venturi is shaped by
05 a conical inlet pressured gas (15) and a conical discharge (16) and feeding cylinder (8) with cavities (9) where space (17) is varied by plunger (18) with roof form (19) where plunger (18) is pressed with compressed gas via a connection (5) with inlet compressed gas (15)

2. Feeder for cryogenic particles destined for treating surfaces as per claim 1 characterised by
10 that the feeder is completely manufactured from a modified polytetrafluoroethylene.

3. Feeder for cryogenic particles destined for treating surfaces as per claim 1 and 2
characterised by that feeding cylinder (8) has 5 cavities (9) which have the form of a half
cylinder with rounded ends.

15

4. Feeder for cryogenic particles destined for treating surfaces as per claim 1, 2 and 3
characterised by that filling opening is two times wider than cavity (9) and is placed under an
angle between 13 and 17 degrees in relation to the axis of feeding cylinder (8).

* * * *

1/3
FIG 1

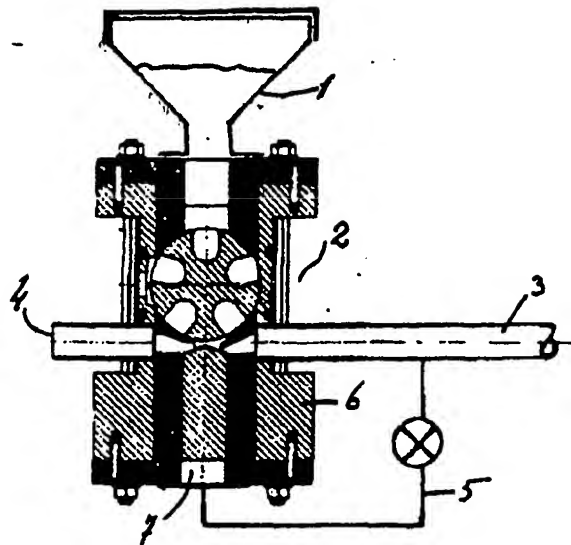
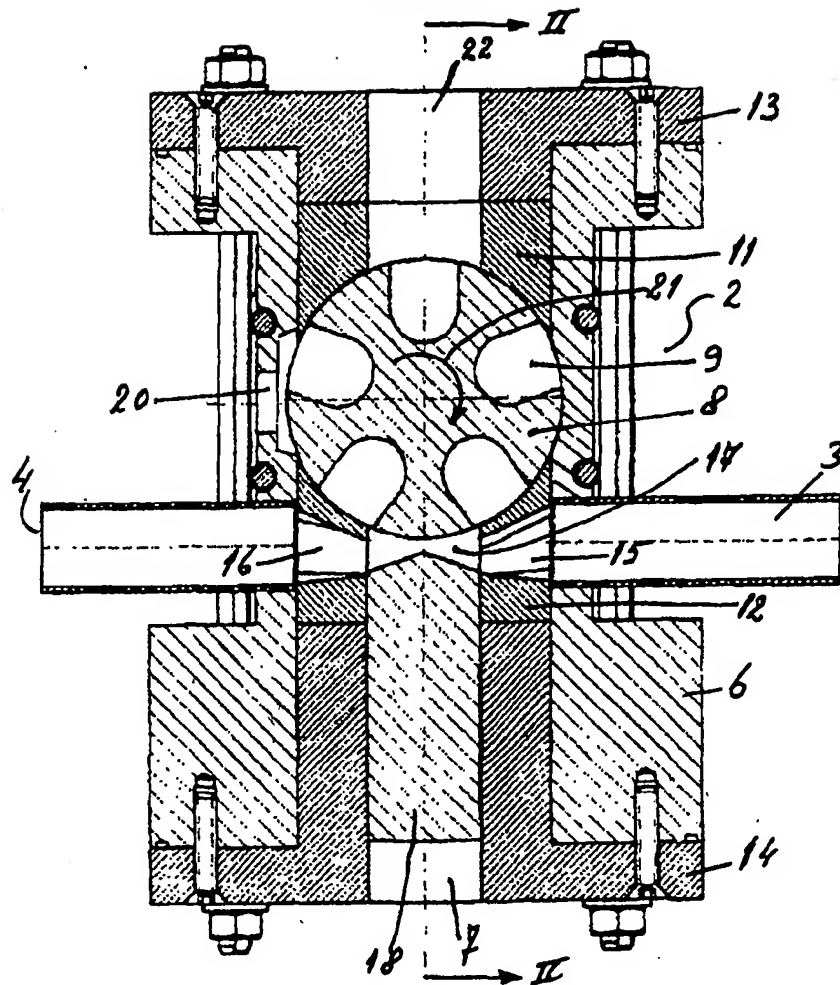
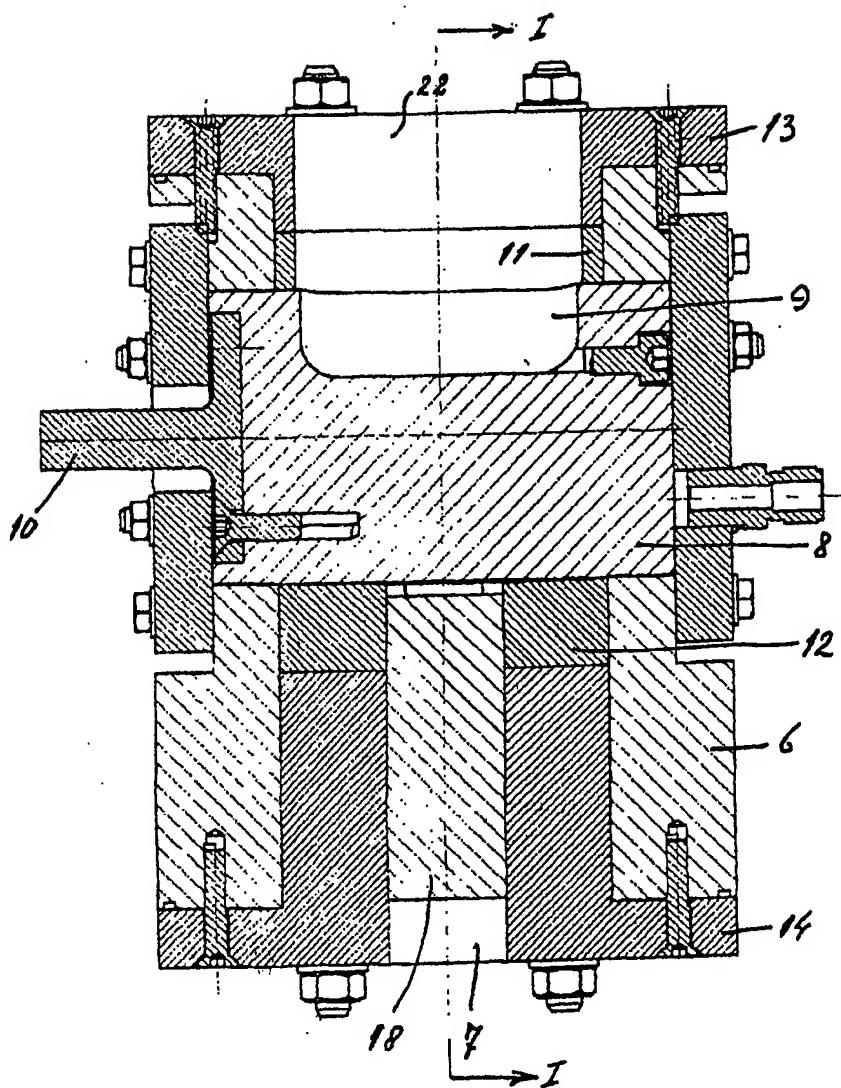


FIG 2



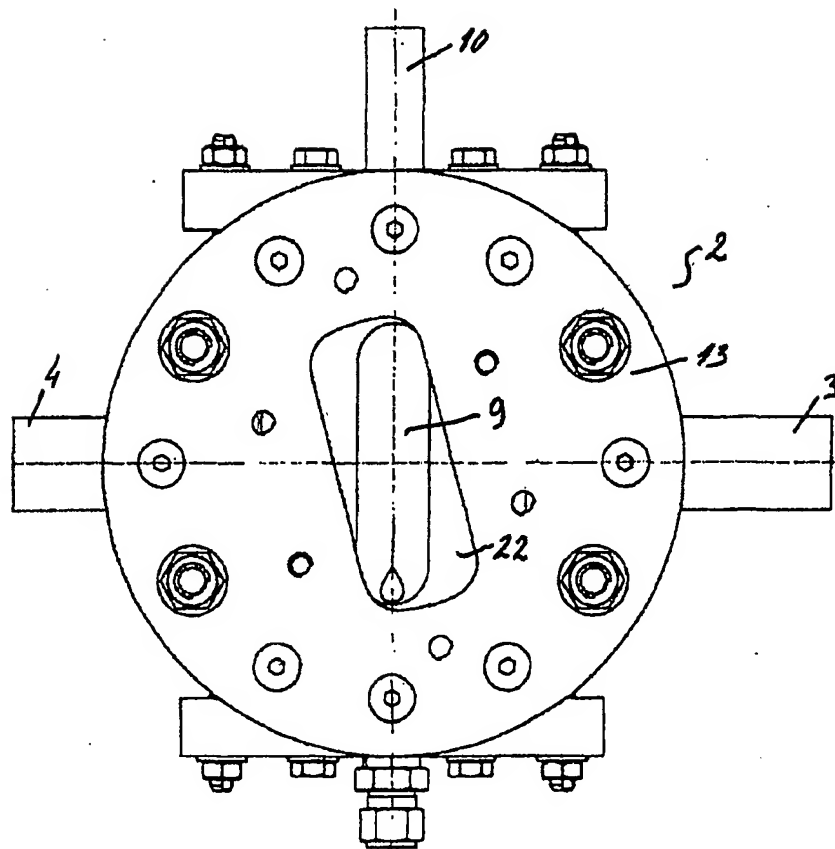
-2/3-

FIG 3



-3/3

FIG 4



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A. CLASSIFICATION OF SUBJECT MATTER
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Minimum documentation searched (classification system followed by classification symbols)

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Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

WPI Data, PAJ, EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 4 947 592 A (LLOYD DANIEL L ET AL) 14 August 1990 (1990-08-14) column 6, line 59 -column 7, line 53; figure 2 ---	1
A	US 5 445 553 A (DANIELSON WILLIAM D ET AL) 29 August 1995 (1995-08-29) column 7, line 23-66; figure 4 ---	1
A	NL 1 007 421 C (HUIBERT KONINGS) 4 May 1999 (1999-05-04) cited in the application the whole document ---	1
A	NL 9 301 237 A (HARKO BV) 1 February 1995 (1995-02-01) the whole document --- -/--	1

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	GB 2 033 483 A (TOYOTA MOTOR CO LTD) 21 May 1980 (1980-05-21) claim 1 -----	1

INTERNATIONAL SEARCH REPORT

Information on patent family members

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ABSTRACT:

The invention concerns a feeder for metering of cryogenic particles. The feeder is foreseen with a feeding cylinder (8) with cavities (9) which transport the cryogenic particles from the bunker (1) to a venturi which takes form by a conical supply (15) and a conical discharge (16) where in the intervening space an element in the form of a roof the cleft between supply and discharge cone enlarges or reduces. The element with the form of a roof is moved with the help of gas-pressure to the feeding cylinder.